



PATENT APPLICATION  
Do. No. 4591-170  
Hana Ref. No. IE10189-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Jongho Lee et al.

Serial No. 09/776,059 Examiner: Not Yet Assigned  
Filed: February 1, 2001 Group Art Unit: 1773  
For: DIELECTRIC LAYER FOR SEMICONDUCTOR DEVICE  
AND METHOD OF MANUFACTURING THE SAME

Box Non-Fee Amendment  
Commissioner of Patents and Trademarks  
Washington, D.C. 20231

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JUN - 8 2001  
TC 1700 MAIL ROOM

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

IN THE SPECIFICATION

Replace the paragraphs as follows:

On page 9, lines 15-24

Sub  
a1  
According to one aspect of the present invention, a crystallization temperature can be increased forming the high-k dielectric layer 14 comprising one or more pairs of, alternating first layer 18 formed, for example, of  $\text{HfO}_2$ ,  $\text{Ta}_2\text{O}_3$ ,  $\text{Y}_2\text{O}_3$  or  $\text{ZrO}_2$  and second layer 22 formed, for example, of  $\text{Al}_2\text{O}_3$  as illustrated in FIGS. 1B, 1C, and 2.

Preferably, the thicknesses of the first and second layers 18, 20 are in the range of approximately 2 to approximately 60 angstroms (critical thickness). More preferably, the thicknesses of the first and second layers are approximately 10 and 5 angstroms, respectively. It is contemplated that if the thicknesses of the first and second layers 18, 20 are within this range, the crystallization temperature can be increased as compared to a bulk dielectric layer.

On page 9, line 31 – page 10, line 6



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Filed: February 1, 2001

Group Art Unit: 1773

For: DIELECTRIC LAYER FOR SEMICONDUCTOR DEVICE AND METHOD OF  
MANUFACTURING THE SAME

Date: MAY 30, 2001

BOX NON FEE AMENDMENT  
Assistant Commissioner for Patents,  
Washington, D.C. 20231

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Enclosed is Preliminary Amendment in the above-identified application.

The fee has been calculated as shown below.

CLAIMS AS AMENDED					
For:	Number After Amendment	Previous Number	Extra	Rate	Additional Fee
Total Claims	5	45	0	x \$18 =	\$0
Independent Claims	2	6	0	x \$80 =	\$0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$0

\*greater of twenty (20) or number for which fee has been paid

\*\*greater of three (3) or number for which fee has been paid

- [X] Information disclosure statement and cited references (6).  
[X] Any deficiency or overpayment should be charged or credited to deposit account number 13-1703.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



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PATENT TRADEMARK OFFICE

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